

Q Street Bridge
(Dumbarton Bridge)
Spanning Rock Creek and Potomac Parkway
Washington
District of Columbia

HAER No. DC-38

HAER
DC
WASH,
594-

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
U.S. Department of the Interior
Washington, DC 20013-7127

HISTORIC AMERICAN ENGINEERING RECORD
Q STREET BRIDGE
(Dumbarton Bridge)
HAER No. DC-38

HAER
DC
WASH
EQ-1

Location: Q Street Bridge spans Rock Creek valley in the northwest section of Washington, D.C. Rock Creek and Potomac Parkway passes beneath its arches.

Date of Construction: 1915.

Designer and Builder: Engineering design by Daniel B. Luten. Glenn Brown and Bedford Brown, consulting architects. Constructed by A. L. Guidone & Co., of New York City under direction of D. E. McComb, Engineer of Bridges in the District of Columbia. Bison sculptures designed by A. Phimister Proctor.

Present Owner: Department of Public Works, District of Columbia.

Present Use: Vehicular and pedestrian bridge.

Significance: Q Street Bridge was designed by prominent architect Glenn Brown. It exemplifies the City Beautiful movement's influence on Washington. Together with the Connecticut Avenue Bridge (HAER No. DC-6), its arched masonry design established the pattern for other bridges along Rock Creek and Potomac Parkway.

Project Information: The documentation of Rock Creek and Potomac Parkway and associated bridges was undertaken by the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER), a division of the National Park Service, Robert Kapsch, chief. The project was sponsored by the Park Roads Program of the National Park Service, John Gingles, deputy chief, Safety Services Division. The project supervisor was Sara Amy Leach, HABS historian.

The Washington-based summer 1992 documentation team was headed by landscape architect Robert Harvey (Iowa State University-Department of Landscape Architecture) who served as field supervisor; the landscape architects were Deborah Warshaw (University of Virginia) and Dorota Pape-Siliwonzuk (US/ICOMOS-Poland); the architects were Evan Miller (University of Colorado-Boulder), Steven Nose (University of Maryland), and Tony Arcaro (Catholic University). The historians were Tim Davis (University of Texas) and Amy Ross (University of Virginia). Jack Boucher made the large-format photographs; Air Survey Corporation of Sterling, Virginia, produced the aerial photography and digital mapping from which the site-plan delineations were made. This bridge report was prepared by Engineering-Science, Inc., Fairfax, Virginia, and edited by Tim Davis.

History of the Crossing

Dumbarton Bridge spans Rock Creek valley midway between the Potomac waterfront and the National Zoo. This portion of the creek, the adjacent roadway, and parkland are officially known as Rock Creek and Potomac Parkway (HABS No. DC-663). The Rock Creek and Potomac Parkway Commission was established in March 1913 to coordinate the construction of a parkway linking Potomac Park with Rock Creek Park. The Director of the Office of Public Buildings and Grounds was appointed the commission's executive officer to oversee the acquisition and development of the parkway.¹ Rock Creek Park was put under the aegis of the Office of Public Buildings and Grounds in 1918, and both the park and parkway were administered jointly by the same succession of engineers. Since 1933, both have been managed by the National Park Service as National Capital Parks.

The bridge possesses local historical significance because of its association with the growth and development of Washington at the turn of the century, particularly the residential development of those areas north and west of the city core. By the twentieth century, Washington was experiencing significant growth. The area northwest of Dupont Circle was being developed rapidly. By the 1880s, suburban development had spread along the eastern edge of the Rock Creek valley, beginning with the establishment of Mount Pleasant in 1865, Dupont Circle in the 1870s, and Kalorama in the 1880s.² Milling along the lower portion of Rock Creek declined after the Civil War, and the area south of Massachusetts Avenue was one of the few sections that remained undeveloped. In 1886, the D.C. Commissioners extended Massachusetts Avenue beyond Florida Avenue (Boundary Street) and across Rock Creek. Within one year, land values had trebled.³ The deep gorge formed by Rock Creek posed a barrier to development, however. During the 1880s and 1890s, the pressure of population growth generated a succession of campaigns to bridge the valley between Washington and Georgetown. In the 1890s, the commissioners expanded the city limits past Rock Creek, creating an even more urgent demand for roads and bridges in the area.⁴

The development of Rock Creek and Potomac Parkway had an important effect on the design and development of the bridge. When Congress authorized the formation of Rock Creek Park in 1890, the valley from the Potomac River to the zoo had been used for various industrial purposes as well as a dumping ground for debris and sewage. Numerous groups, including the Georgetown Citizens' Association, wanted to have Rock Creek enclosed in a culvert and the valley filled in to form a level connection between Georgetown and Washington. They contended that the filled-land would develop into a handsome neighborhood that would add to the prosperity of West Washington

¹ Barry Mackintosh, Rock Creek Park: An Administrative History, History Division, National Park Service, U.S. Department of the Interior, Washington, D.C., 1985), 54.

² Frederick Gutheim, Worthy of a Nation: The History of Planning for a National Capital (Washington: Smithsonian Institution, 1977), 103, 106, 107.

³ "Sheridan-Kalorama Historic District," Application for Historic District, D.C. Historic Preservation Review Board (13 February 1989), 11.

⁴ Paul Y. Inashima, Rock Creek Park and Rock Creek and Potomac Parkway: Archaeological Survey Report: An Archaeological Investigation of Thirty-One Erosion Control and Bank Stabilization Sites Along Rock Creek and Its Tributaries, (U.S. Department of the Interior, National Park Service, Denver Service Center, 1985), 59.

and Georgetown. The 1901 McMillan Commission expressed skepticism of this proposal on both aesthetic and economic grounds. The commission favored an alternative proposal advocated by the Washington Board of Trade, which called for the rehabilitation and preservation of lower Rock Creek valley as an integral part of the Washington park system. Although the valley restoration plan was endorsed by the U.S. Army Corps of Engineers in 1908, the Rock Creek and Potomac Parkway Commission was not established until 1913. Nonetheless, the triumph of the valley parkway plan dictated the use of bridges for east-west crossings. The resulting bridges were designed to complement the park experience. By the time the parkway was completed, nearly all the older iron truss spans were replaced by handsome masonry arched bridges, which harmonized better with the naturalistic park setting.⁵

The defeat of the culvert proposal created additional pressure to construct a bridge across Rock Creek linking the northern reaches of Georgetown with Washington.⁶ Georgetown residents hoped to take advantage of the boom in construction fueled by the construction of Taft Bridge in 1897, the paving of Massachusetts Avenue past Rock Creek, and the subdivision of the of the Kalorama estate into residential neighborhoods. They claimed that Q Street, located directly south of these newly opened areas, was the natural location for a bridge. Proposals for the Q Street crossing included alternatives such as moving either the Woodley Lane Bridge, which would no longer be needed once the Taft Bridge at Connecticut Avenue was complete, or the Thompson steel bridge, located near the present-day Massachusetts Avenue bridge. The idea of recycling one of these bridges was abandoned due to the cost of strengthening the aging structures. The Thompson bridge was designed for light rural traffic, and the increased use would have necessitated structural reinforcement of the bridge and the employment of bridge keepers. Another problem confronting early Q Street Bridge proponents was that, at the time of these proceedings in 1905, D.C. did not own the land west of Rock Creek, which was used as a streetcar yard. The acquisition of this property would have dramatically increased the cost of the undertaking.⁷ Nevertheless, designs for an entirely new masonry bridge were completed by 1911.

Design History

Architecturally, the bridge is a significant monument to the impact of the City Beautiful movement in Washington, exemplifying concerns with civic art, the relationship of structures within large-scale urban plans, classical architectural forms and precedents, and Renaissance ideals of artistic collaboration. Brown, who played an instrumental role in establishing the McMillan Commission, was especially intent on producing a design that would harmonize with the naturalistic landscape of the park and also incorporate City Beautiful notions of monumental public spaces and public art. Of particular note was the cooperation among architects, engineers, and sculptors in the design of the bridge, as well as the successful working relationship with the newly formed Commission of Fine Arts. This collaboration was commended in *American Architect* in 1915.⁸

⁵ Mackintosh, 49.

⁶ "Dumbarton Bridge National Register of Historic Places Nomination" (16 July 1973).

⁷ "Transfer Probable," *Washington Star*, 9 February 1905; "Bridge Plan Vetoed," *Washington Post*, 7 October 1905)

⁸ Glenn Brown and Bedford Brown, "The Q Street Bridge, Washington, D.C.," *The American Architect* 108 (27 October 1915): 273-278.

The setting was an essential element in the design process. The architects blended sculpture, structure, and site by studying the form and its relationship to the setting with scale models. Brown stated in 1915 that his first problem when beginning design involved the plan of the bridge, since Q Street in Washington and Q Street in Georgetown were 185' out of alignment. He chose the curved form as the best solution, with a plaza at the junction of 23rd and Q streets in Washington. A curve from the center of this intersection would connect with Q street in Georgetown. The curvilinear form of the bridge was an unusual way to correct the alignment between the two sections of Q Street, but it contributed greatly to the design's success. A precedent for this alignment may have been the curved arch viaduct of the Baltimore & Ohio Railroad at Relay, Maryland.⁹

The basic form of the bridge was a series of arches, large enough to be imposing, but not too large to be built on a curve.¹⁰ At the beginning of the design process, Brown and his son Bedford reviewed two hundred photographs of bridges throughout the world. The models for this structure were Roman aqueducts and a bridge in the mountains of Italy, which had bold corbels carrying small arches. The bridge was consciously designed to set a precedent for future Washington bridges. Brown stated that he was impressed with the "possibilities that were presented for the designing of a structure that would perhaps dominate the proposed park improvements in the section of its location."¹¹ One of the reasons that the Georgetown citizens had abandoned the idea of reusing existing bridges, was to match the high caliber design of Taft Bridge. With the construction of these two structures, masonry arch bridges became the standard for later bridge construction along the parkway.

Several elements of the bridge were viewed as noteworthy at the time of construction, including the attempt to conform architecturally with the "high class residences . . . around the east end of the bridge" and with the proposed parkway. The decoration, adornment and color of the bridge were also acclaimed. The color of the structure was intended to evoke a feeling of bridges and buildings in Spain and Italy--a rich, reddish, warm buff.¹²

Designers

The bridge is significant for its association with master architect, Glenn Brown. Brown was a prominent figure in the urban planning movement in Washington at the turn of the century. He was one of the guiding forces behind the creation of McMillan Commission and the revival of the L'Enfant plan for directing federal construction in Washington. As national secretary of the American Institute of Architects, Brown used the organization's national convention in 1900 as a forum on planning for the national capital, an event which led to the formation of the McMillan Commission.¹³

⁹ "Q Street Bridge at Washington," Engineering News 75 (6 January 1916): 1-3, p. 1.

¹⁰ Brown and Brown, 275.

¹¹ Brown and Brown, 274.

¹² "Q Street Bridge at Washington," 1.

¹³ Jon Peterson, "The Hidden Origins of the McMillan Plan for Washington, D.C.: 1900-1902," in Antoinette Lee, editor. Historical Perspectives on Urban Design: 1890-1910 (Occasional Paper No. 1, Center for Washington Area Studies, 1983), 7-9.

Prior to the construction of Dumbarton Bridge, Brown had designed three earlier bridges for Rock Creek Park. Only one, the 1902 Pebble Dash Bridge over Broad Branch, was ever constructed.¹⁴ His bridge for the National Zoological Park was cited for excellence in American Architect and Building News.

Engineer Commissioners for the District of Columbia during the design and construction of Q Street Bridge included Col. W. V. Judson, Col. Chester A. Harding, and Major Charles W. Kutz. The basic design of the bridge was provided by Daniel B. Luten, who was well known for his structural design of highway bridges used throughout the northeast during the early twentieth century.

History of Construction

The Q Street Bridge was built by A. L. Guidone & Co., of New York City, under the general direction of D. E. McComb, Engineer of Bridges in the District of Columbia, and completed in 1915.

Description

The Dumbarton Bridge is a five span, reinforced concrete, arched, roadway bridge crossing Rock Creek and Potomac Parkway at Q Street, N.W. The structure has been used a pedestrian and vehicular bridge since its construction in 1915. The bridge carries two lanes of traffic and is approximately 265' long and 36' wide, with two 7' sidewalks. The structure has a curvilinear plan on a 12 degree curve because the two portions of Q Street are out of alignment by 185'. The use of multiple arches rather than a single span was determined, in part, by this curved plan. Using Roman aqueducts as models, the main arch is the largest, with a 43' wide opening. The flanking arches decrease in size by one foot. The widths of the piers decrease in the same ratio.

The two sidewalks are supported by rows of small, deep, concrete arches, which rest on corbels. The row of sculpted Indian heads in full relief define the corbels. Below the corbels is a decorative belt course. Decorative bas relief panels are located in the spandrels between each arch. The top line of the bridge is curved by a slight battering of the piers and corbels. The paneled balustrade along the sidewalks is closed. Because of the steep, uneven banks, the abutments meet flared wing walls.

Each arch is composed of town stone ribs, each 12' wide, which are connected by reinforced concrete walls. Steel girders within the arches support the roadways, sidewalks, and parapet. The arches rise 75' above the creek and parkway. The roadway is carried on a reinforced concrete slab. The corbels are constructed of concrete-encased steel girders. The quoins, abutment walls, balustrade wall, belt course, and carvings were all constructed of a reddish-buff sandstone to evoke the Mediterranean precedents of the design. The construction contract specified Kingswood sandstone. The filling was reinforced concrete produced with a mixture of different gravels and sands to produce the same terra cotta hue. It is notable that no pigment was added to the concrete. All concrete was

¹⁴ William Bushong, Rock Creek Park: Historic Resource Study (Washington, D.C.: U.S. Department of the Interior, August 1990), 108.

tooled to match the cut work of the stone. The contract also specified that the facing mortar was to be 1" thick and that it was to be built up with the concrete with no plane of demarcation allowed.¹⁵

The entrances to the bridge are delineated by the four statues of bronze bison resting on granite pedestals atop the wing walls. Originally, the entrance to the bridge on the Washington side was elaborated with a plaza at the intersection of Q and 23rd streets. The center of the plaza, where a fountain was originally planned, marked the tangent of the curve of the bridge plan. The curve was also expressed by a median in the roadway on which street lamps were set in granite pedestals. It was planned that the buffalos, the Indian heads on the bridge, and the fountain would all be visible from either the 23rd Street or the Q Street approach.

Light fixtures were located on the raised median to preserve the unbroken curve of the parapet. The original lighting consisted of 6 lamps on bronze posts placed on the dividing wall, to be executed by the Flour City Ornamental Iron Works of Minneapolis, Minnesota. It is unclear whether these lamps were erected, or if standard D.C. lamp standards were used, since there was considerable controversy over this issue. An additional lamp post and a fender post were placed at the Washington end of the median in 1916.

Sculptural Ornamentation

Four 7' high bronze buffalo sculptures frame the entrances to the bridge. Designed by A. Phimister Proctor, a sculptor of international fame, whose work was exhibited at the World's Fair of 1893, the buffalos were the largest statues ever cast in one piece of bronze. These figures gave the bridge its popular nickname, "Buffalo Bridge." One set of buffalos was aligned with the axis of Q Street and the other on the axis of 23rd street. Proctor had previously designed the tigers that adorn the Sixteenth Street bridge over Piney Branch.¹⁶ Glenn Brown designed the Indian heads. The conventionalized modeling was based on a life mask of the Sioux chief Kicking Bear, which was found in the Natural History Museum of the Smithsonian Institution. The buffalos and Indian heads were designed to be viewed from all directions.¹⁷

Alterations

The National Register nomination for Dumbarton Bridge, states that the bridge has undergone few alterations. However, some significant features of the original design have been altered since construction in 1915. The plaza has been changed, and the foundation removed, but the date of alteration is unknown. In 1928, the tail of the buffalo on the southeast pedestal was cut off by unidentified vandals.¹⁸

¹⁵ "Proposals for the Construction of Q Street Bridge Across Rock Creek," (Letter from the Board of Commissioners of the District of Columbia, 3 November 1913), 20.

¹⁶ James M. Goode, The Outdoor Sculpture of Washington, D.C. A Comprehensive Guide (Smithsonian Institution Press, 1974), 299.

¹⁷ Brown and Brown, 274.

¹⁸ "Dumbarton Bridge National Register of Historic Places Nomination."

In 1938, the median was removed, and street lights were placed along the parapet wall. The principal reason for removal of the median was public demand for increased safety for vehicular traffic across the bridge. There were numerous complaints about the growing number of traffic accidents at the approaches to the bridge caused by the indirect access and the raised median. Throughout the 1930s there was also public request for increased lighting at the site, again for safety reasons.

Between the mid-1920s and 1935, the four-lane Rock Creek Parkway was constructed, replacing the narrow roadway that ran along the creek valley when the bridge was constructed. However, this construction did not result in any modification of Dumbarton Bridge. The wing wall on the northeast side and 17' of top railing and web stones of the balustrade had to be replaced in the early 1930s.¹⁹ The replacement stone was Aquia stone.

Gunitite has been used in various places, including within the corbel arches, to repair concrete disintegration. The concrete appears discolored in various locations, with the gray concrete showing through the terra cotta mortar facing. Apparently, this is not a recent occurrence. The contractor notified the Engineer Commissioner of this problem in May 1915. The contractor's letter stated that the mortar facing was displaced from the construction and picking processes, and requested the architect's advice. Brown responded that it was intended to weather in that manner.²⁰

Currently, there are numerous cracks, signs of water damage, and some disintegration of the concrete. The stone work is in generally good condition, although there is evidence of missing mortar, chipping, and cracking in some places, particularly in the balustrade and wing walls. There is exposed reinforcing rod on both the vertical facing of the bridge. A bridge inspection report of 1990 states that the steel girders within the bridge are corroded.²¹

The Dumbarton Bridge was listed individually on the National Register of Historic Places as of July 16, 1973. The structure was included on the D.C. Inventory of Historic Sites on November 8, 1964. It is a Category II Landmark as designated by the Joint Committee on Landmarks of the National Capital. It also lies within the boundaries of the Sheridan-Kalorama Historic District, a local designation of August 16, 1989, and is described as being one of four bridges defining boundaries to the historic district. The boundaries of this historic district are Connecticut and Florida avenues on the east, P Street on the south, and Rock Creek and Potomac Parkway on the west and north. Georgetown Historic District borders the bridge on the west, at Rock Creek. Massachusetts Avenue Historic District is adjacent to the bridge, and includes buildings facing Massachusetts Avenue from 17th Street to Observatory Circle, including the Turkish Embassy, which is adjacent to the bridge on the northeast.

¹⁹ "Specifications for Bridge Work," District of Columbia Highway Department, Bridge Division, November 1930.

²⁰ Letter from contractor to Office of the Engineer Commission of the District of Columbia, 11 May 1915 (Correspondence, 1912-1916, Records of the D.C. Archives).

²¹ "Dumbarton Bridge," Annual Bridge Inspection Report, District of Columbia Department of Public Works, Bridge Maintenance Division, 1990.

Bibliography

Applewhite, E. J. Washington Itself. New York: Alfred Knopf, 1981.

Brown, Glenn and Brown, Bedford. "The Q Street Bridge, Washington, D.C.," The American Architect 108 (27 October 1915): 273-278.

Bushong, William. Rock Creek Park: Historic Resource Study. Washington, D.C.: U.S. Department of the Interior, August 1990.

"Dumbarton Bridge." Annual Bridge Inspection Report, District of Columbia Department of Public Works, Bridge Maintenance Division, 1990.

"Dumbarton Bridge National Register of Historic Places Nomination," 16 July 1973.

"Q Street Bridge at Washington." Engineering News 75 (6 January 1916): 1-3.

Goode, James M. The Outdoor Sculpture of Washington, D.C.: A Comprehensive Guide. Smithsonian Institution Press, 1974.

Green, Constance McLaughlin. Washington: A History of the Capital, 1800-1950. Princeton University Press, 1962.

Gutheim, Frederick. Worthy of a Nation: The History of Planning for a National Capital. Washington: Smithsonian Institution, 1977.

Inashima, Paul Y. Rock Creek Park and Rock Creek and Potomac Parkway: Archaeological Survey Report: An Archaeological Investigation of Thirty-One Erosion Control and Bank Stabilization Sites Along Rock Creek and Its Tributaries. U.S. Department of the Interior, National Park Service, Denver Service Center, 1985.

Lee, Antoinette, editor. Historical Perspectives on Urban Design: 1890-1910, Occasional Paper No. 1, Center for Washington Area Studies, 1983.

Mackintosh, Barry. Rock Creek Park: An Administrative History. History Division, National Park Service, U.S. Department of the Interior, Washington, D.C., 1985.

Myer, Donald Beekman. Bridges and the City of Washington. Washington, D.C.: Commission of Fine Arts, 1974.

Office of the Engineer Commission of the District of Columbia. Correspondence, 1912-1916. Records of the D.C. Archives.

Peterson, Jon. "The Hidden Origins of the McMillan Plan for Washington, D.C.: 1900-1902," in Lee, Antoinette, editor. Historical Perspectives on Urban Design: 1890-1910, Occasional Paper No. 1, Center for Washington Area Studies, 1983.

"Proposals for the Construction of Q Street Bridge Across Rock Creek." Letter from the Board of Commissioners of the District of Columbia, 3 November 1913.

"Q Street Bridge." Vertical Files, Washingtoniana Collection, Martin Luther King, Jr. Memorial Library, Washington D.C.

"Rock Creek and Potomac Parkway Bridge Near P Street." HAER Report No. DC-11, 1988.

"Sheridan-Kalorama Historic District." Application for Historic District, D.C. Historic Preservation Review Board, 13 February 1989.

"Specifications for Bridge Work." District of Columbia Highway Department, Bridge Division, November 1930.

ADDENDUM TO:
Q STREET BRIDGE
(Dumbarton Bridge)
Rock Creek Park
Spanning Rock Creek & Potomac Parkway
Washington
District of Columbia

HAER DC-38
DC, WASH, 594-

PAPER COPIES OF COLOR TRANSPARENCIES

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
U.S. Department of the Interior
1849 C Street NW
Washington, DC 20240-0001